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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.         | CONFIRMATION NO. |
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| 09/980,733   | 02/12/2002  | Hideki Kitajima      | S004-4432 (PCT)             | 8097             |
| 7590   | 12/01/2004  |                      |                             |                  |
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|  |             |                      | EXAMINER<br>CARTER, AARON W |                  |
|  |             |                      | ART UNIT<br>2625            | PAPER NUMBER     |

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/980,733

Applicant(s)

KITAJIMA ET AL.

Examiner

Aaron W Carter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 15-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 15-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The proposed drawings were received on June 13, 2003. These drawings are acceptable please submit formal drawings.

### ***Response to Amendment***

2. In response to applicant's amendment received on June 13, 2004, all requested changes to the specification and claims have been entered. Claims 15-31 have been added. Claims 3-14 have been cancelled. Currently pending claims include 1, 2 and 15-31.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites the limitation "first rotary member" in line 6. There is insufficient antecedent basis for this limitation in the claim.

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Regarding claim 23, the phrase "like a" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 15-18 and 23-31 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,324,310 to Brownlee.

As to claim 1, Brownlee discloses an image reading apparatus comprising:

A light source (column 2, lines 51-54);

An input member having an input surface on which an object to be read is placed, the input member comprising a transparent rotary member mounted to undergo rotation in accordance with movement of the object while the object is in contact with the input surface (column 2, lines 46-51);

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Light detecting means comprised of a plurality of photoelectric conversion elements for detecting light scattered or reflected at an interface between the object and the input surface (column 2, lines 54-56); and

Image synthesizing means for detecting an amount of rotation of the rotary member and producing an image of the object on the basis of partial images obtained by the light detecting means and the amount of rotation of the rotary member (column 3, lines 10-12 and column 4, lines 1-3).

As to claim 2, Brownlee discloses an image reading apparatus according to claim 1;

Wherein a repeating pattern of light and dark portions is formed on a surface at one end of the rotary member (column 3, lines 23-25); and

Wherein the light detecting means detects light emitted from the light source and transmitted through the repeating pattern to detect the amount of rotation of the rotary member (column 3, lines 10-12 and 25-28).

As to claim 15, Brownlee discloses an image reading apparatus according to claim 1;

Wherein the light detecting means is disposed at a position where it receives reflected light generated at the interface between the object and the input surface according to Snell's law (Fig.2, element 223, wherein the use of Snell's law is inherent).

As to claim 16, Brownlee discloses an image reading apparatus according to claim 1;

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Wherein the light detecting means is disposed at a position where it receives reflected light generated at the interface between the object and the input surface according to Snell's law and scattered light generated at the interface between the input surface of the first rotary member and the object (Fig. 2, element 223, wherein the use of Snell's law is inherent and scattered light is caught by mirror, element 217, and reflected into the light detecting means).

As to claim 17, Brownlee discloses an image reading apparatus according to claim 2;

Wherein incident light emitted by the light source and incident on the input surface has a plurality of different incidence angle components (Fig. 2, wherein the light source (215) emits light that hits the transparent roller at different angles and the light is then turned and hits the input surface at different incidence angles).

As to claim 18, Brownlee discloses an image reading apparatus according to claim 1;

Further comprising on of an image formation optical system and a mirror disposed between optical paths of the rotary member and the light detecting means (Fig. 2, elements 217, 221 and 223).

As to claim 23, Brownlee discloses an image reading apparatus according to claim 1;

Wherein the object comprises one of an object having protrusions and recesses like a fingerprint or light and dark portions like a document (column 2, line 46 and column 3, lines 23-25).

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As to claim 24, Brownlee discloses an image reading apparatus according to claim 1;

Wherein rotation of the rotary member causes one-dimensional position input (column 3, lines 23-32, wherein linear imaging device corresponds to 1-D).

As to claim 25, Brownlee discloses an image reading apparatus according to claim 1,

Further comprising a second rotary member mounted to undergo rotation with the rotary member and having a rotation axis different from that of the rotary member (column 3, lines 10-18; and

Means for detecting an amount of rotation of the second rotary member so that two-dimensional position input is affected in accordance with an amount of rotation of the rotary member and the second rotary member (column 3, lines 10-18).

As to claim 26, Brownlee discloses an image reading apparatus according to claim 2,

Further comprising a second rotary member mounted to undergo rotation with the rotary member and having a rotation axis different from that of the rotary member (column 3, lines 10-18);

A repeating pattern of light and dark portions provided on the surface of one end portion of the second rotary member (column 3, lines 23-25);

A second light source (column 3, line 15);

Second light detecting means (column 3, line 17-18); and

Rotating amount detecting means for detecting a rotating amount of the second rotary member by detecting light emitted by the second light source and transmitted through the

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repeating pattern formed on the surface of the second rotary member to enable two-dimensional position input in accordance with the rotating amount of the first rotary member and that of the second rotary member (column 3, lines 10-32).

As to claim 27, Brownlee discloses an image reading apparatus comprising:

A housing (Fig. 2, element 211);

An input surface provided in the housing in which an object to be read is passed across (Fig. 2, element 209);

A rotary member mounted in the housing to undergo rotational movement along with linear movement of the object across the input surface (Fig. 2, element 203 and 205);

A light source provided in the housing for emitting light toward the object and the rotary member (Fig. 2, element 215);

A light detector provided in the housing for receiving light reflected or scattered by interaction between the object and the rotary member as the object is passed across the input surface (Fig. 2, element 217, 221 and 223); and

Image generating means for producing an image of the object by synthesizing outputs of the light detector obtained at each of a plurality of angular positions of the rotary member as the object is passed across the input surface (column 3, line 49 – column 4, line 3).

As to claim 28, Brownlee discloses an image reading apparatus according to claim 27;

Wherein the object is brought into contact with a surface of the rotary member as the object is passed across the input surface (Fig. 2, element 209 and column 2, lines 49-51).



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As to claims 29 and 30, please refer to the rejections made for claims 25 and 26 above.

As to claim 31, please refer to the rejections made for claim 15 above.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brownlee in view of USPN 4,785,171 to Dowling, Jr. ("Dowling").

As to claim 19, Brownlee discloses an image reading apparatus according to claim 1.

Brownlee does not disclose expressly an optical fiber bundle disposed between optical paths of the rotary member and the light detecting means.

Dowling discloses a image reader further comprising an optical fiber bundle disposed between optical paths of the rotary member and the light detecting means (column 2, lines 5-25).

Brownlee & Dowling are combinable because they are from the area of image processing and more specifically fingerprint acquisition.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to take the image reading process disclosed by Brownlee and combine it with the use of an optical fiber bundle as taught by Dowling.

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The suggestion/motivation for doing so would have been that using an optical fiber bundle provides a system with high-resolution capability and high durability in repeated use (Dowling, column 1, lines 53-62).

Therefore, it would have been obvious to combine Brownlee with Dowling to obtain the invention as specified in claim 19.

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brownlee in view of USPN 4,032,889 to Nassimbene.

As to claim 20, Brownlee discloses an image reading apparatus according to claim 1, wherein the rotary member is formed of a transparent material.

Brownlee does not disclose expressly wherein the rotary member is formed of a glass material, which is an inorganic base material, or a synthetic resin, which is an organic base material, although it is inherently one or the other that is formed of.

Nassimbene discloses an image reader wherein the rotary member is formed of a glass material, which is an inorganic base material, or a synthetic resin, which is an organic base material (column 4, lines 9-11 and Fig. 6).

Brownlee & Nassimbene are combinable because they are from same field of image processing and more specifically fingerprint acquisition using a transparent rotary member.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a glass or Lucite transparent rotary member as disclosed by Nassimbene in the image reading process disclosed by Brownlee.

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The suggestion/motivation for doing so would have been to provide an apparatus for image reading that is not susceptible to slight variations in the orientation of the object being read with respect to the reading apparatus (column 1, line 67 – column 2, line 3).

Therefore, it would have been obvious to combine Brownlee with Nassimbene to obtain the invention as specified in claim 20.

8. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brownlee in view of USPN 4,641,350 to Bunn.

As to claim 21, Brownlee discloses an image reading apparatus according to claim 1.

Brownlee does not disclose expressly a dirt prevention layer provided on the input surface of the rotary member for preventing dirt from adhering to the input surface.

Bunn discloses an image reader that further comprises a dirt prevention layer provided on the input surface of the rotary member for preventing dirt from adhering to the input surface (column 5, line 53 – column 6, line 2).

Brownlee & Bunn are combinable because they are from the same field of image processing and more specifically fingerprint acquisition.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide the image reading apparatus disclosed by Brownlee with the dirt prevention layer as taught by Bunn.

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The suggestion/motivation for doing so would have been that the use of a dirt prevention layer prevents system error from the presence of dirt, oil and water (Bunn, column 1, lines 30-37).

Therefore, it would have been obvious to combine Brownlee with Bunn to obtain the invention as specified in claim 21.

As to claim 22, Brownlee discloses an image reading apparatus according to claim 1, including a rotary member and Bunn further discloses a cleaner provided on a surface of the input member for removing dirt adhering to the surface (column 1, lines 30-37).

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 5,825,474 to Maase discloses a dirt prevention layer.

USPN 6,628,377 to Sabatini et al. discloses a transparent rotary member used in an image reader.

USPN 6,259,108 to Antonelli et al. discloses a linear image reader.

USPN 5,177,802 to Fujimoto et al. discloses a transparent rotary member used in an image reader (Fig. 28).

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W Carter whose telephone number is (703) 306-4060. The examiner can normally be reached on 7am - 3:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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